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ABSTRACT

In July 1997, the University Library at the University of Nebraska at Omaha adopted a new structural model for Web site development--the publishing metaphor. Rather than relying on an individual expert (the Webmaster) or a WebTeam comprised of a few individuals, the model permits everyone in the organization, regardless of position or Web experience, to function as authors and editors in developing Web content. A Web publisher, responsible for site architecture, orchestrates the content development process through a series of informal processes. Once the basic model was developed, Web site parameters and values were established for the site in order to maintain direction and quality. Those values included: accessibility, value-added, responsive, and reflective of the University Library's values and mission. Web publisher role definition began with the values that the Library's administration set forth for the Web site. The first role identified was architectural, the second, organizational. From an administrative perspective, the process has been successful both at encouraging staff participation and in developing content for the site. An excerpt from the University Library "Staff Handbook" which describes the values and administration of the Library Internet site is appended. (Author/AEF)

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Restructuring Web Site Design: An Alternative to WebTeams

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Abstract

In July 1997, the University Library at the University of Nebraska at Omaha adopted a new structural model for web site development - the publishing metaphor. Rather than relying on an individual expert (the webmaster) or a WebTeam comprised of a few individuals, the model permits everyone in the organization, regardless of position or web experience, to function as authors and editors in developing web content. A web publisher, responsible for site architecture, orchestrates the content development process through a series of informal processes. The topics addressed include why this model was chosen, the formulation of key web site values, and how the model has functioned as an informal process within a formal organization.

The University Library at the University of Nebraska at Omaha launched into the world of web publishing much like other organizations. There was little planning and no one really knew the implications of what was being undertaken. A reference librarian began to experimenting with HTML and he created the first library home page. As the Internet continued to develop at a phenomenally rapid pace, more library faculty and staff became aware of the potential of a web site to organize and access information. Staff members provided content and links to the site with little thought to the overall purpose of the endeavor.

As the web site continued to grow, it became apparent that a more systematic, planned approach to its development as well as more resources were necessary. In July 1996, a WebServer Development team was formed with representatives from each department in the library. The purpose of the team was to create consistent and cohesive information for use by library patrons and staff in electronic form. The charge for the team included:

1. Determine the type of information that will be mounted.
2. Ensure that information is consistently presented and easy to use
3. Provide a mechanism to keep information current and links updated

4. Be accountable to your department for content

5. Develop training mechanisms for library staff

This group met for a little over six months and they were instrumental in launching an Intranet for use by library staff. The dynamics of the team were not particularly synergetic and it became apparent that team development of the Internet site might not be the best model for our organization. Each team member was asked to provide a written evaluation of the team process and to make recommendations about how to proceed. The following recommendation was developed from those comments:

> *The University Library will continue to develop both an Internet and an Intranet site. Both of these will be the responsibility of a "Publisher" who will receive content from "Editors." "Editors" will be designated throughout the organization and they will solicit information from "Authors" who will create and update information. Department Chairs will be responsible for establishing guidelines for the information that is mounted about their department. They will also be expected to ensure that information about their department is relevant and current. Since the Internet site is our primary "window to the world" and a major public relations mechanism, final authority for its content and appearance will be the responsibility of the Administrative Office with input from the Administrative Council and others.*

The "publisher", "editor", and "author" metaphor is one that is easily understood by library staff since that is the organization of all publishing enterprises. The concept was readily accepted by library faculty and staff and it had the enticement of allowing anyone to participate in the process if they chose to do so. The model was also congruent with basic values of the organization to break down barriers and work across department lines. It did not limit participation to the members of a team or place all responsibility on a Webmaster. Knowledge of HTML was not required for authors or editors and department chairs were encouraged to be active participants in ensuring that information in their areas was useful and current.

Once the basic model was developed, web site parameters and values were established for the site in order to maintain direction and quality. Those values included:

- **Accessibility:** Standard HTML will be used and pages will be written to accommodate standard browsers including text-based browsers. The best principles of site navigation will be incorporated and pages will be designed for an attractive and unified appearance. Link will be checked and updated regularly.

- **Value-Added:** Information will be presented that reflects the unique ability of library staff to select, categorize, and evaluate information resources.

- **Responsive:** The content of the site will respond to the information needs of users in an appropriate and timely fashion.

- **Reflective of the University Library's values and mission:** The web site will serve to enhance public perceptions of the Library, its personnel and services.

As with most organizations, the University Library did not have an extra position to devote to

this function. One staff member did possess the necessary skills and abilities and he was willing to take on the Web Publisher role. The editors and authors also made web development part of their regular duties. Although responsibility for site development is spread throughout the organization, the Web Publisher is the pivotal function that ensures success if done well and failure if not handled properly.

The "publishing enterprise" metaphor chosen to structure web development at the UNO Library was conceptually attractive and fit organizational goals. Yet, precise roles within the web development effort were not clearly defined. Beyond the notion that authors would write, editors would edit, and the publisher would publish, the metaphor as adopted established only the most general formal roles in the organization, modes of communication, and individual responsibility and accountability. The "Web Site Administration and Development Guidelines" - the governing document for the development effort - envisioned an informal process, stating that "Administration of the Internet site is to be primarily accomplished by informal consultation and communication between individuals involved in the development of content and administration of the site." Consequently, a good deal of the publisher's attention in the early stages of this process focused on defining what the position should be doing and figuring out the best way to do it.

Defining the Web Publisher's Role

Role definition began with the values that the Library's administration set forth for the web site. Site values reflect the organization's purposes, intentions, and desires. They (whether called values, purposes, goals, objectives, etc.) are the starting point for any web design effort.

Based on the statement of values, experience with the WebServer Development Team, and numerous conversations with Library personnel, two main "roles" for the web publisher were defined. The first was architectural - concerned with the actual development of the web site. Within the architectural role, three activities were key:

- articulating a vision for the site and demonstrating, through the examples of other sites and by building several small prototypes, what was possible and how it would work;
- keeping the development focus on the user's requirements - not on what had done in the past or what appealed to individuals in the organization; and
- assessing the quality of the product (web pages) against the site values.

The second role defined for the web publisher was organizational - how the content development process would work. Within this role, four activities or approaches proved to be essential:

- developing a wide variety of relationships that crossed departmental boundaries and didn't confine communication to vertical channels;
- nurturing and validating risk-taking on the part of individuals who were being asked to do things had never done before, to think "out of the box," and to assume new responsibilities;
- assisting individuals in understanding the site value of "value-added content," and

affirming them in their abilities to add value to what they produced as authors and editors;

- encouraging involvement, which consisted largely of demonstrating that the process was - indeed -- open and encouraging individuals to build content that reflected personal interests and visions.

•These activities weren't precisely goals nor were they clearly defined formal behaviors. They are probably best understood as "modes of operation," as a conscious approach adopted toward others in the organization and toward the activity itself.

Architectural Role

Within the "architectural role" - the physical development of the site - are job duties consonant with those generally described as "web site design and management." Such things as responsibility for site design and appearance, site structure and navigation, site consistency, link maintenance, and usability are common to all development and management structures - whether it's a lone webmaster or a web committee or team charged with developing and running a web site. Authority over these aspects of the site gives a "web publisher" as much control over a site's architecture as that exercised by the classic webmaster model.

In the early stages of this process, the term "site management" was used as if it were equivalent to what has been termed "the architectural role" here. By and large, this is appropriate. However, there is at least one major difference. A listing of the "architectural goals," or "management objectives" for the web site may illustrate this.

What the Library wants the site to be and to do is to insure user satisfaction by meeting needs and supporting ease of use. Site users are to have a positive experience. The organization needs accurate information about how the site is working and desires continuous improvement. None of these objectives differ from those likely to be stated for other models. Yet the organization's final objective for the web site management process, however, does differ: "developing and encouraging new working relationships within the organization." This internally oriented goal appears to be unique to this effort and articulation of the "publisher" metaphor. For the University Library, the web publisher role reflects strategic management objectives for the organization as a whole that are much larger than the web site itself. The day-to-day development process was similar to the process reported by most any organization consciously approaching web development. The publisher's responsibilities did not significantly differ from those of a web team or web weaver - a planning stage followed by analysis, and then design. Within the typical planning stage, however, it was more important to understand what potential authors needed from the site manager than to understand what information the site manager needed from the organization. During the analysis stage, it was essential to let editors begin to determine the composition and nature of the content that would be provided. Ultimately, site development and management could not be separated out or done independently of the strategic organizational role established for the web publisher position.

The Organizational Role

While it is possible for the webmaster or the web team to "go off and do it" out of sight and mind

of the larger organization, the web publisher constantly re-focuses on the organization. The publisher neither produces nor evaluates content. Without the rest of the organization, there is no web site. Within the "organizational role," a number of distinct job duties were defined that emphasize the relationships between individuals within the organization and are not universal in web development efforts. These include developing web-related skills (web literacy) in the organization, formulating a commonly understood set of design guidelines, introducing new web technologies to authors and editors, developing policies that ensure responsible and timely content development, and doing the final evaluation against site values.

This means that the principle daily activities of the web publisher go beyond HTML coding to include educating and facilitating. The publisher is constantly educating the organization about the web environment and facilitating the work needed to achieve visions and goals that may not be his or her own but which do help achieve the organization's values.

Organizational Response

Individuals vary in their responses to the web, to the Library's web site development efforts and toward new organizational expectations. Most are enthusiastic, interested, and anxious to learn. Some individuals may require more educating and support than others. Some in the organization will want the site to do something it can't do or shouldn't do. Often their desires or visions for the site will point out important needs or service areas that the web site may need to accommodate. Still others in the organization are enraptured by the technology and the web. They make enthusiastic critics at times and are always seeking something different. Not only is it good to have the design assumptions challenged, but the demands of these individuals can be an important spur toward continued development. Inevitably, some in the organization will be resistant to the process. The effort needed to develop understanding and support within the organization, particularly with resistant individuals, is frequently justified by the contributions those individuals can make toward the site when resistance is overcome.

Key Relationships

There are, of course, key relationships essential to success in the process. For a web publisher the most important are management, systems or information technology personnel, and the editors and authors who are producing content for the site. Other key relationships are those established with informal leaders in the organization whose opinions, ideas, and attitudes shape the working environment for both informal and formal groups.

Organizational Participation

As it developed at the University Library, the "publishing enterprise" model should be understood as focused on establishing and supporting broad organizational participation in the web site development process. This purpose is equal to that of putting up and maintaining a web site. The actual process relies on informal, personal relationships and will be successful to the extent that individual participation is encouraged and supported.

The Library embarked on this process with no guarantee that it would work. In the ten months since the scheme was officially adopted, there have been significant changes in approach to web site development and web applications at the University Library. One measure of the process is

the number of persons actively involved in Internet web development.

Prior to the WebServer Development Team, the Library's web site was primarily the work of a single individual. The WebServer Development Team was comprised of five individuals, one from each department and and from the Systems office.

At the time of writing, 53% of Academic-Administrative employees (degreed faculty) are involved in content development as are 86% of the Managerial-Professional staff and 20% of the Office-Service (hourly employees) staff. 21 of the 54 employees in the Library have a role in the process:

Classification	Authors	Editors
Academic-Administrative	47% (8/17)	24% (4/17)
Managerial-Professional	71% (5/7)	29% (2/7)
Office-Service	17% (5/30)	7% (2/30)

Note that these numbers do not include duplications (individuals who are serving both as authors and editors) and reflect only participation on the Library's Internet site. Numbers of participants in the Library's internal web site, the Intranet, are comparable but have a significantly different distribution, which minimal participation by Academic-Administrative staff and a much heavier participation by Office-Service staff.

For the staff as a whole, 39% of the staff (21/54) currently have some active involvement in web site development. A full third of the Library staff (18/54) contribute content to the site as authors and 15% of the staff (8/54) are actively editing content. Most of these author-editor relationships cross one or more departmental and unit boundaries in the organization. Participants are generally enthusiastic about the process, proud of their work and the recognition that they receive, and anxious to upgrade their skills and understandings.

Another way of measuring the impact of the process is to look at what has happened to the product itself. The "first edition" of the web site under the publisher model was launched in mid-August 1997. At that time the site comprised 157 pages and contained 684 links. We averaged 52,470 kb of file transfers from the server and recorded total hits averaging 14,461 per week. Ten months later, the site comprises 354 pages - plus another 140 pages in an on-line exhibit space - and contains 1,045 links. We average 79,627 kb of file transfers and are logging 30,397 total hits per week. User tracking and feedback indicates that users are returning to the site and that the site is steadily gaining additional users.

Evaluation

From an administrative perspective, the process has been successful both at encouraging staff participation and in developing content for the site. This is not, of course, a perfect process or a panacea for all ills. Content development remains uneven - reflecting the participation of some individuals and the non-participation of others -- and an effort is underway through the editors to begin to develop previously neglected content areas. No one involved in the process works on it "full-time." A "second edition" of the web site is currently in preparation - scheduled for launch

in July of this year - that will address some of the deficiencies noted in content development and will amend the existing structure to incorporate a more process-driven, subject-oriented research approach.

Libraries wishing to re-evaluate or initiate web development processes may find value in a publishing enterprise model if organizational values are congruent with the broad participation and informal methods we describe. The web publisher is crucial to this process, however, so it is important to focus, finally, on the publisher.

The Publisher as an Agent of Change

From an organizational viewpoint, the web publisher functions primarily to keep a balance between competing interests, tendencies and imperatives within the organization. Some of these competing factors are specific to web sites, others are reflective of the organizational culture.

The first balance is between innovation and stabilization. The content process can easily run amuck since it is such a simple matter to quickly convert a massive amount of previously existing content into a web format. Newly empowered authors and editors may focus on quantity rather than quality in their production. Innovation - a virtue when it brings new services and new information to users - must be balanced with the need for stability in the resource. Bibliographic instruction, user expectations, coherent navigation and service continuity all suffer if the environment is volatile and change is the order of the day.

A balance must be struck between the informal structure of the content development process and the formal structure of the organization. Values - the ability to achieve the goals set for the process - will suffer if the process structure becomes too fluid and everyone does what they want. Conflict may arise if the informal structure is allowed to significantly interfere with the formal organization - if an author's work on the web means that they do not accomplish their other job duties, for example. The formal structure, if allowed to dominate totally, acts to slow the process and to stifle innovation by discouraging informal relationships and communication.

A personal balance for the web publisher (and editors) must be found between informal methods and the formal system for doing things. It is an easy trap - for webmasters or web team members as much as for web publishers - to give up on others and "do it all themselves" if the agreement to develop content has broken down. What is the appropriate response in an informal environment when commitments are not kept?

One of the more significant problem areas encountered was that of maintaining a balance between "seizing opportunities" and "reacting to problems." Due to the speed and ease with which the web site can respond to innovation, an expectation is created that problems can be solved by "throwing a web page at them" or that some new web technology will provide a new way of doing things that will eliminate a problem. Such demands arise in response to specific cases rather than from needs analysis. These demands grasp for a solution before the problem is clearly understood and are often made with little understanding or consideration of technical issues or implementation cost.

Finally, there is a balance to be struck within the organization between increasing the specialized knowledge and skills of workers, which can be perceived by them as a narrowing of function,

and the competing imperative of broadening functions, diffusing knowledge and empowering workers. As it developed at the University Library, the web publisher process works to promote broadening by allowing new functions, changing work relationships and empowering. To the extent that an organizational culture is uncomfortable with sharing job functions, responsibilities, and information across boundaries, this process will produce conflict.

Personal Attributes of a Web Publisher

What personal skills and characteristics are needed to execute this balancing act and orchestrate a diffuse content development process? Like any web master, a web publisher should have a thorough knowledge of web design and skills adequate to the task at hand. The publisher needs the appropriate tools to build a site and an understanding of the site user's needs. There are additional traits needed to support the organizational purposes assigned to this position. These include a detailed knowledge of the organization - its services, personnel and values - and administrative competence - a good working relationship with management and some experience with project management. A web publisher should be comfortable working with flexible -- if not downright vague -- boundaries and be willing to relinquish control of significant responsibilities or authority. Most of the web publisher's work is done one-on-one so skills in dyadic relationships are of benefit. Finally, the publisher needs to be able to articulate a vision - whether that is his or her own vision, management's vision, or the often understated visions of the authors or editors he or she may be working with at the moment.

Application

The web publisher model may not be the best model or even the most appropriate model for other libraries. At the University Library it has functioned to promote rapid content development, widespread participation by staff in the process, and greater understanding of web design considerations and the web environment in the organization.

Bibliography

Since this discussion is concerned with the particular experience of our Library, few outside sources were specifically consulted in its preparation. However, the following titles may be of value to those considering the web publisher metaphor or similar processes for their institutions.

This paper's analysis of the web publisher's role in the Library was heavily influenced by the ideas and approaches taken in:

- St. Clair, Guy. *Entrepreneurial Librarianship: The Key to Effective Information Services Management.* Bowker-Saur. 1996.
- St. Clair, Guy. *Power and Influence: Enhancing Information Services within the Organization.* Bowker-Saur. 1994.

Books and articles on web design and development tend to run heavily toward "nuts-and-bolts" issues - such as HTML coding -- and often ignore or neglect process. The following books have influenced and continue to inform the design processes at the University Library:

- Brigman, Linda G. *Web Site Management Excellence.* Que. 1996.
- Forsythe, Chris, et. al., editors. *Human Factors and Web Development.* 1998. Lawrence Erlbaum Associates. 1998.
- Koehler, Jerry W., et al. *The Human Side of Intranets: Content, Style & Politics.* CRC Press LLC. 1998.
- Maitra, Amit K. *Building a Corporate Internet Strategy: The IT Manager's Guide.* Van Nostrand Reinhold. 1996.
- Rosenfeld, Louis and Morville, Peter. *Information Architecture for the World Wide Web: Designing Large-Scale Web Sites.* O'Reilly. 1998.

Library experiences with web development are occasionally reported in the professional literature. The following title is a compilation of web site development reports from a wide variety of libraries:

- Still, Julie M., ed. *The Library Web.* Information Today. 1997.

from the University Library, University of Nebraska at Omaha, *Staff Handbook:*

LIBRARY INTERNET SITE

Values

The Library Internet site will be designed and maintained according to the following principles:

Accessibility. Standard HTML will be used and pages will be written to accommodate standard browsers, including text-based browsers; the best principles of site navigation will be incorporated and pages will be designed for an attractive and unified appearance; links will be regularly maintained.
Reflective of the organization's values and mission. It will serve to enhance public perceptions of the Library, its personnel and services.
Responsive. The content of the site will respond to patrons' service and information needs in an appropriate and timely fashion.
Value-added content. Information will be presented that reflects the unique abilities of library staff to select, categorize and evaluate information resources.

Administration

Site management is the responsibility of the web publisher, appointed by the Administrative Council. The publisher has primary responsibility for site design and organizes site navigation, maintains consistency of format, oversees site quality and maintains site links. The publisher will also assist the organization in developing web-related skills, formulate design guidelines, introduce new web technologies and develop appropriate policies in consultation with Council and others. The publisher has primary responsibility for insuring that the site is accessible and that it is reflective of the organization's values and mission.

Content for the Internet site will be developed by authors and editors within the organization. Authors generate content for the site based on their expertise, access to information and responsibilities within the organization. Authors have primary responsibility for insuring that the information presented is responsive to patron needs. The content generated by authors will be refined or reviewed by editors who insure that the material is current, appropriate and usable. Insuring that content is appropriate and usable may require consultation with the publisher and others, particularly department chairs and knowledgeable individuals in the organization. Editors have primary responsibility for insuring that the information presented incorporates value-added content. Depending on their skill level, authors and editors may provide content to the publisher that ranges from text and layout to completed HTML documents.

Administration of the Internet site is to be primarily accomplished by informal consultation and communication between individuals involved in the development of content and administration of the site. Department chairs provide strategic guidance to the personnel involved in web development and establish any needed guidelines to structure and encourage participation in developing content and web-based services. The appellations of "author" and "editor" refer to

function rather than to any formal organizational role. Individuals may take on a variety of roles in this process or may participate only for a limited time on a particular project. The publisher works through department chairs to facilitate site development and to assist interested persons in developing content for the site.

The final authority for the content and appearance of the Internet site is the Administrative Office acting in consultation with the Administrative Council and others.